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News Releases

R&D Chronicles: A Brief History of Seasickness in the U.S. Navy

Released: 4/17/2017

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A rough passage to Belgium by Robert Seymour, 1831. Photo courtesy of BUMED Historian.

“As soon as we meet the swell of the ocean, most of those who have not sailed before, and some of those who have, begin to feel unable to keep on their feet; they feel unaccountably helpless; soon they have vertigo and nausea; and it is not very long before the impulse to empty the stomach becomes irresistible.”

~Medical Director Joseph Wilson, USN, on Seasickness (1879)

For as long as there have been ships and voyages at sea, there has existed a struggle to achieve one's "sea legs." Whether sailing on calm or turbulent waters, the disturbing lack of equilibrium we term seasickness is almost certainly a guarantee.

Perhaps it is no surprise the word for nausea is rooted in the Greek name for ship ("Naus"); seasickness has been a bane for mariners since ancient times. Although science has come closer than ever before to unlocking the mystery of this type of motion sickness, there are still many notions as to its cause and who is most susceptible.

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R&D Chronicles: A Brief History of Seasickness in the U.S. Navy

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One of the prevailing theories holds that the affliction arises from a sensory conflict between the eyes and inner ear which triggers a guttural reaction. Over the last 50 years researchers have speculated, those who are deaf and without fully functioning vestibular systems are less prone to motion sickness.

From the moment the U.S. Navy launched its first frigate, shipboard medical personnel have sought cures and concocted their own treatments for seasick Sailors.

In the nineteenth century, Navy physicians proposed everything from fresh air and remaining on deck “as long as possible,” to the intake of foods like smoked herring or ginger cakes and imbibing aromatic drinks like coffee, tea or brandy. More extreme measures were proposed including the administering of opiates, chlorate hydrate, seawater enemas, or as Assistant Surgeon Robert Boyd prescribed in 1896, “muriate of cocaine.”

While still in the age of wooden sailing ships, surgeon William Johnson, USN (born. 1804) presciently stated seasickness was the result of the “impression produced on the optic nerve and transmitted to the brain by the continued motion of the vessel” and advised afflicted Sailors to “keep [their] eyes shut.”

The spectrum for seasickness cures remained as varied into the 1900s. In 1906, at the Medical Congress held in Lisbon, Portugal, an Army physician proposed injecting atropine to act on the “vasomotor disturbances” and strychnine to “stimulate the nervous system.”

Captain Charles St. Butler, instructor at the Naval Medical School, cautioned against taking any drugs—especially sedatives like bromides—for the affliction. He posited the best medicine was a “clear head, a clear gastrointestinal tract, and a few words of encouragement” from the ship physician.

During World War II, military researchers began experimenting with the drug scopolamine (Hyoscine) as a means of preventing both seasickness and airsickness. An alkaloid like atropine derived from the Belladonna plant, scopolamine had previously been used in the 1920’s as an experimental truth serum by law enforcement.

In one study, researchers found that the administration of .6 mg of the drug reduced the morbidity of motion sickness by 50 percent. Deeming the adverse side effects—like drowsiness, dry mouth, blurred vision, etc.—as minimal, both U.S and British Armed Forces began incorporating scopolamine in emergency first aid-kits for life rafts beginning in 1943.

Other motion sickness preventatives with Benzedrine (amphetamine) and ephedrine had been commercially available in the United States in the 1940’s, but were initially prohibited for use in the Navy. In an article published in the BUMED Newsletter in June 1945, Lieutenant Commander E.C. Hoff from the Bureau of Medicine and Surgery (BUMED) Research Division wrote, “there is no reason to believe that either of these drugs is of value in the prophylactic or therapeutic management of motion sickness.” He would go on to write that individuals unable to overcome susceptibility of motion sickness without the habituation of any drug should be removed from any activity that leads to the affliction.

Some of the most significant medical research on motion sickness took place at the Naval Medical Aviation Research Laboratory (NAMRL) in Pensacola, Florida during the 1960’s and 70’s. In a series of studies led by disorientation pioneer Captain Ashton Graybiel and associates, the Navy conducted an exhaustive literature search of treatments and lead trials on various drug combinations. The aim of these studies was to deter motion sickness among NASA astronauts as

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well as naval aviators. An end result was the prescribed use of both scopolamine and dextroamphetamine (d-amphetamine) for space travel—each with properties that counteracted the respective side effects of the other.

Today, the Navy still uses scopolamine as a treatment for seasickness, but the drug’s side effects still make it far from a perfect cure all – an improved treatment may very well be on the horizon.

Recently, the Naval Medical Research Unit-Dayton studied the efficacy of an intranasal scopolamine spray that works faster than either the transdermal patch or oral tablet and can also further minimize the drug’s negative side effects.

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